

REMARKS/ARGUMENTS

This is a Response to the Office Action mailed April 20, 2006, in which a three (3) month Shortened Statutory Period for Response has been set, due to expire July 20, 2006. Twenty-five (25) claims, including four (4) independent claims, were paid for in the application. Claims 21 and 23 are currently amended. No new matter has been added to the application. No fee for additional claims is due by way of this Amendment. The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090. Upon entry of the amendments herewith, claims 1-25 remain pending.

1. Objections to the Claims

At paragraph 1 of the Office Action, claims 19 and 20 are objected to because allegedly “there is no basis in claim 19 for the limitation in claim 20 of ‘monitoring power source voltage and current parameters for *each phase* on an input side of the source converter.’ Method claims 1-9 contain a three-phase AC voltage limitation. Independent claim 19, however, does not recite the limitation of a three-phase AC voltage source. Claims 19 and 20 should clearly specify the presence of a three-phase AC voltage source if it is applicants’ intention to require three phases.” Applicants respectfully traverse the rejection for at least the reasons provided below.

The Office Action points out that “method claims 1-9 contain a three-phase AC voltage limitation.” However, claim 19 is an independent claim that is distinct and separate from claims 1-9. Accordingly, claim 19 is not required to have the same limitations and features as other claim sets, such as claims 1-9. Thus, claims 19 and 20 must be considered without regard to any recited limitation or features of claims 1-9.

With respect to claim 19, the Office Action indicates that it is the limitation of “monitoring power source voltage and current parameters for *each phase* on an input side of the source converter” of claim 20 that is at issue. That is, there is no allegation of objectionable limitations or features in claim 19. Accordingly, Applicants respectfully request withdrawal of the objection to Claim 19.

Claim 20 is a dependent claim that recites the limitation of “monitoring power source voltage and current parameters for *each phase* on an input side of the source converter” (emphasis added) that is at issue. Applicants have precisely claimed the intended scope of the subject matter sought to be patented. Applicants respectfully point out that the Specification, at page 17, lines 4-7, discloses that “the embodiment of Figure 1 discloses an application in which both the source 14 and the load 12 have three phases. The apparatus and methods disclosed herein are equally applicable to dual-phase, single-phase, or more phases, as will suit those of ordinary skill in the art.” Claim 20, as drafted, is intended to cover three-phase, dual-phase, single-phase, or more phases. That is, claim 20 clearly and precisely recites features of the various embodiments as intended by the Applicants. To amend claim 20 as suggested by the Office Action would deny protection to some disclosed embodiments to which the Applicants may be entitled. Furthermore, as recited, claim 20 is readily appreciated by one skilled in the arts because each term of claim 20 has a precise and well understood meaning. Because claim 20 permissibly recites features of fully disclosed alternative embodiments, and because claim 20 is fully appreciated by one skilled in the arts, Applicants respectfully request withdrawal of the objection to Claim 20.

At paragraph 2 of the Office Action, claims 21 and 23 are objected to because “it appears the word ‘commutate’ (claim 21, line 15; claim 23, line 6) was mistakenly used instead of ‘commute.’” Claims 21 and 23 were apparently examined under this assumption. Applicants appreciate the Office Action’s assumption above so that examination of the instant case could proceed in a timely manner. In response to the Objection, claims 21 and 23 are amended herewith. Accordingly, Applicants respectfully request withdrawal of the objection to claims 21 and 23.

## 2. Rejections Under 35 U.S.C. § 102(b)

In the Office Action, at paragraph 4, claims 19-20 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by *Janonis et al.* (U.S. Patent 5,612,580), hereinafter *Janonis*. For a proper rejection of a claim under 35 U.S.C. Section 102, the cited reference must disclose

all elements/features/steps of the claim. See, e.g., *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 7 USPQ2d 1129 (Fed. Cir. 1988).

a. Independent Claim 19

Applicants respectfully submit that independent claim 19 is allowable for at least the reason that *Janonis* does not disclose, teach, or suggest at least the feature of at least “monitoring DC bus voltage on the DC bus,” as recited in claim 19.

*Janonis* does not disclose, teach, or suggest at least monitoring DC bus voltage on a DC bus. *Janonis* is apparently limited to, at most, a system wherein an “uninterruptible power supply 10 may operate in an ‘Off-Line’ mode and an ‘On-Line’ mode. In particular, the uninterruptible power supply 10 operates in an ‘Off-Line’ mode if a line AC signal from the power source line 12 is acceptable (*i.e.*, the amplitude of the voltage from the power source line 12 is above a first threshold) and an ‘On-Line’ mode if the line AC signal from the power source line 12 is unacceptable (*i.e.*, the amplitude of the voltage from the power source line 12 is below the first threshold)” (column 2, lines 47-56). It is apparent from the *Janonis* figures and the specification that the disclosed power source line 12 is an AC line. Nowhere does *Janonis* disclose, teach, or suggest monitoring DC bus voltage on the DC bus. The Office Action also acknowledges the deficiency in the teaching of *Janonis* at page 6, wherein the Office Action states that “it would be obvious to a person of ordinary skill in the art that the voltage level of the power source can be sensed either as an AC voltage before the AC source converter, or as a DC voltage after the converter.”

Because *Janonis* fails to disclose, teach, or suggest at least monitoring DC bus voltage on the DC bus, *Janonis* does not anticipate claim 19. Accordingly, the rejection of claim 19 as allegedly being anticipated by *Janonis* should be withdrawn.

Furthermore, other recited features further distinguish claim 19 over a 35 U.S.C. §102(b) rejection under *Janonis*. However, for brevity, such other distinguishing features are not argued herein because, at least in part, claim 19 is additionally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Janonis* in view of *Tassitino* (U.S. Patent 5,633,539).

(Arguments of allowability of claim 19 over the proposed combination of *Janonis* in view of *Tassitino* are presented hereinbelow.)

b. Claim 20

Because independent claim 19 is allowable over the cited art of record, dependent claim 20 (which depends from independent claim 19) is allowable as a matter of law for at least the reason that the dependent claim 20 contains all features/elements of independent claim 19. See, e.g., *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Accordingly, the rejection to claim 20 should be withdrawn.

3. Rejections Under 35 U.S.C. § 103(a)

In the Office Action, at page 5, claims 1-5, 8-14, 17-23, and 25 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over *Janonis* in view of *Tassitino* (U.S. Patent 5,633,539), hereinafter *Tassitino*. Additionally, at page 13, claims 6-7, 15-16, and 24 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over *Janonis* in view of *Tassitino*, and in further view of *Faria et al.* (US Patent 6,295,215). It is well-established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a combination of references, the cited combination of references must disclose, teach, or suggest, either implicitly or explicitly, all elements/features/steps of the claim at issue. See, e.g., *In Re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

a. Independent Claims 1, 10, 19 and 21

Applicants respectfully submit that independent claims 1, 10, 19, and 21 are allowable for at least the following reasons. With respect to claim 1, the proposed combination of *Janonis* in view of *Tassitino* does not disclose, teach, or suggest at least the feature of “***monitoring DC bus voltage*** on the DC bus; establishing a ***first DC bus voltage threshold*** indicative of a first power source irregularity and a ***second DC bus voltage threshold*** indicative of a second and distinct power source irregularity, wherein the first threshold is greater than the

second threshold; comparing the *DC bus voltage* to the first and second thresholds; commuting electrical power from both the power source and from the DC power supply to the DC bus when the *DC bus voltage* is intermediate the first and second thresholds; and conversely commuting electrical power only from the DC power supply to the DC bus when the *DC bus voltage* is less than the second threshold, and disabling the source converter,” as recited in claim 1 (emphasis added).

With respect to claim 10, the proposed combination of *Janonis* in view of *Tassitino* does not disclose, teach, or suggest at least the feature of “means for monitoring *DC bus voltage* on the DC bus; establishing means for establishing a first *DC bus voltage* threshold indicative of a first power source irregularity and a second *DC bus voltage* threshold indicative of a second and distinct power source irregularity, wherein the first threshold is greater than the second threshold; comparing means for comparing the *DC bus voltage* to the first and second thresholds; and commuting means for commuting electrical power from both the power source and from the DC power supply to the DC bus when the *DC bus voltage* is intermediate the first and second thresholds, and for conversely commuting electrical power only from the DC power supply to the DC bus when the *DC bus voltage* is less than the second threshold and for disabling the source converter,” as recited in claim 10 (emphasis added).

With respect to claim 19, the proposed combination of *Janonis* in view of *Tassitino* does not disclose, teach, or suggest at least the feature of “monitoring *DC bus voltage* on the DC bus; establishing a first *DC bus voltage* threshold indicative of a first power source irregularity and a second *DC bus voltage* threshold indicative of a second and distinct power source irregularity, wherein the first threshold is greater than the second threshold; comparing the *DC bus voltage* to the first and second thresholds; commuting electrical power from both the power source and from the DC power supply to the DC bus when the *DC bus voltage* is intermediate the first and second thresholds; and, conversely commuting electrical power only from the DC power supply to the DC bus when the *DC bus voltage* is less than the second threshold, and disabling the source converter,” as recited in claim 19 (emphasis added).

With respect to claim 21, as amended, the proposed combination of *Janonis* in view of *Tassitino* does not disclose, teach, or suggest at least the feature of “a number of voltage

sensors coupled to sense *DC bus voltage* on the DC bus; a controller configured to compare the *DC bus voltage* to a first *DC bus voltage* threshold indicative of a first power source irregularity and a second *DC bus voltage* threshold indicative of a second and distinct power source irregularity, wherein the first threshold is greater than the second threshold; and further configured to provide control signals to at least one of the three phase AC source converter and the three phase AC load converter to commute electrical power from both the power source and from the DC power supply to the DC bus when the *DC bus voltage* is intermediate the first and second thresholds, and for conversely commuting electrical power only from the DC power supply to the DC bus when the *DC bus voltage* is less than the second threshold and for disabling the source converter,” as recited in claim 21 (emphasis added).

Generally, the above-recited features of claims 1, 10, 19, and 21 may be generally described as, but not limited to, monitoring and/or sensing DC bus voltage, and/or using the monitored and/or sensed DC bus voltage to advance operation of the respective embodiment in accordance with the limitations and features recited by claims 1, 10, 19, and 21. That is, claims 1, 10, 19, and 20 all recite monitored and/or sensed *DC bus voltage*.

*Janonis* does not disclose, teach, or suggest a monitoring and/or sensing DC bus voltage. As noted above in the arguments for allowability of claim 19 made in response to the rejection under 35 U.S.C. §102(b) as allegedly anticipated by *Janonis*, it was demonstrated that *Janonis* does not disclose, teach, or suggest at least the feature of monitoring or sensing DC bus voltage on a DC bus. Thus, *Janonis* fails to disclose, teach, or suggest every element of the Applicants’ claimed invention.

*Tassitino* also fails to disclose, teach, or suggest at least monitoring and/or sensing DC bus voltage. *Tassitino* teaches, at most, “a single direct current sensor (“DCCT”) 262. Typically, a DC current sensor 262 is used in common UPS systems for monitoring the backup power supply source current level” (column 4, line 65 to column 5, line 1, and Figure 2). “The DC current sensor 262 measures the level of current of the power supplied to the backup power source or battery 120 and generates a DC signal. The voltage level of the DC signal is representative of the level of current of the power supplied to the backup power source or battery 120” (column 5, lines 12-17).

It is important to note that the output of the DC current sensor 262 is a voltage, which is not the same as a monitored and/or sensed DC bus voltage. That is, monitored and/or sensed DC current (on the line to battery 120) is not the same as monitored and/or sensed DC bus voltage, as recited in claims 1, 10, 19, and 21.

*Tassitino* does disclose “three Alternating Current ("AC") Current Transformers ("CT") 152, 154, and 156” (column 3, lines 14-16, and Figure 1), where the “AC, CT 152, 154 and 156 generate CT signals whose voltage levels are representative of the current on each of the three phases of the filtered and transformed AC signal” (column 3, lines 52-55). However, it is important to note that the output of the AC Current Transformers 152, 154, and 156 is not the same as a monitored and/or sensed DC bus voltage. That is, monitored and/or sensed AC current (on the three AC phase lines to rectifier 160) is not the same as monitored and/or sensed DC bus voltage, as recited in claims 1, 10, 19, and 21.

Thus, *Tassitino* fails to disclose, teach, or suggest every element of the Applicants’ claimed invention, because a monitored and/or sensed DC bus voltage as recited in claims 1, 10, 19, and 21 is not disclosed. When considered together, the proposed combination of *Janonis* in view of *Tassitino* does not expressly teach at least the above-recited limitations of claims 1, 10, 19, or 21 (since neither *Janonis* or *Tassitino* disclose monitoring or sensing DC bus voltage on a DC bus). Accordingly, the proposed combination of *Janonis* in view of *Tassitino* does not teach, disclose, or suggest at least the claimed limitations of claims 1, 10, 19, or 21. Therefore, a *prima facie* case establishing an obviousness rejection by *Janonis* in view of *Tassitino* has not been made. Therefore, claims 1, 10, 19, and 21 are not obvious under the proposed combination of *Janonis* in view of *Tassitino*, and the rejection should be withdrawn.

b. Rejection of the Claims Under *Janonis* In View of *Tassitino*, and In Further View of Information Apparently Under Official Notice by the Office Action

Claims 1-5, 8-14, 17-23, and 25 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over *Janonis* in view of *Tassitino*. However, since the proposed combination of *Janonis* in view of *Tassitino* does not teach at least the above-recited limitations of claims 1, 10, 19, and 21 (since neither *Janonis* or *Tassitino* disclose monitoring or sensing DC bus voltage), something more is required to fill the gap that is not expressly disclosed in the proposed combination of *Janonis* in view of *Tassitino*.

The Office Action fills the “gap” by alleging that “it would be obvious to a person of ordinary skill in the art that the voltage level of the power source can be sensed either as an AC voltage before the AC source converter, or as a DC voltage after the converter. Both AC and DC sensed voltages are directly related to the status of the AC input. Both sensing locations are in direct communication with the AC source input, and the voltage at either location has not been altered by any intermediate voltage, such as the DC supply voltage. The sensed voltages (either AC or DC) are proportional to each other and to any changes/deviations in the level of the AC source voltage” (Office Action, page 6).

Here, the Office Action is apparently taking Official Notice of the above-described facts or common knowledge which is not of record (in either *Janonis* or *Tassitino*). As noted above, claims 1-5, 8-14, 17-23, and 25 are expressly rejected under 35 U.S.C. §103(a) as allegedly unpatentable over *Janonis* in view of *Tassitino*. The Office Action does not expressly reject the claims under 35 U.S.C. §103(a) as allegedly unpatentable over *Janonis* in view of *Tassitino*, in further view of Official Notice of information taken by the Office Action. Accordingly, the rejection is improper, and for at least this reason alone, the rejection should be withdrawn.

However, to advance prosecution of the instant case in a timely manner, an apparent rejection of the claims under 35 U.S.C. §103(a) as allegedly unpatentable over *Janonis* in view of *Tassitino*, in further view of Official Notice of information taken by the Office Action, is assumed herewith. Applicants respectfully traverse a rejection based, in part, upon an Official Notice of facts or common knowledge not in the record for at least the following reasons.



First, the type of information alleged in the Office Action is not the type of information that may be properly assumed as facts or common knowledge under an allegation of Official Notice. MPEP §2144.03 indicates that “in limited circumstances, it is appropriate for an examiner to take official notice of facts not in the record or to rely on ‘common knowledge’ in making a rejection.” Here, the Office Action is apparently taking notice of two points that are related to a portion of the novelty of the various embodiments. The first point that the Office Action is apparently taking notice of is that “it would be obvious to a person of ordinary skill in the art that the voltage level of the power source can be sensed either as an AC voltage before the AC source converter, or as a DC voltage after the converter.”

The second point is that the Office Action is apparently taking notice that “both sensing locations are in direct communication with the AC source input, and the voltage at either location has not been altered by any intermediate voltage, such as the DC supply voltage.” The assumption that “voltage at either location has not been altered by any intermediate voltage” is simply incorrect at a fundamental level. There may be significant voltage alterations occurring within in AC/DC current converting devices, such as the disclosed *Janonis* first converter 32 or the *Tassitino* rectifier 160. Voltage alterations may be controllable through controlled gate operations. Furthermore, voltage alterations (drops) are inherent across the individual gating devices themselves. Thus, it is not correct to assume that in all cases “the voltage at either location has not been altered by any intermediate voltage, such as the DC supply voltage.” Accordingly, the rejection itself, which relies on the above-described incorrect assumption, is improper. For at least this reason alone, the rejection should be withdrawn.

Second, at least three different references have been considered by the Office Action (*Janonis* or *Tassitino* and *Faria et al.*) in the rejection of the pending claims. None of the references used by the Office Action to reject claims disclose monitoring and/or sensing DC bus voltage as recited in claims 1, 10, 19, and 21. The Office Action’s failure to recite features supported in documentary evidence is in itself evidence that none was available, thus such was not well-known to one of ordinary skill in the art. Accordingly, for this reason alone, the allegation is improper and the rejection should be withdrawn.

Third, a novel and unexpected benefit is realized by monitoring and/or sensing DC bus voltage, as compared to the disclosed monitoring and/or sensing of AC voltage in *Janonis* or *Tassitino*. In the event of a failure or misoperation of the AC/DC current converting device, such as the disclosed *Janonis* first converter 32 or the *Tassitino* rectifier 160, the AC voltages sensed by *Janonis* or *Tassitino* would remain unchanged. However, DC voltage would drop to zero volts, or be significantly degraded, in the event of a failure or misoperation of the disclosed *Janonis* first converter 32 or the *Tassitino* rectifier 160. That is, because *Janonis* and *Tassitino* do not monitor DC voltage, a failure or misoperation of the *Janonis* first converter 32 or the *Tassitino* rectifier 160 would not be detected. In the various embodiments as recited in at least claims 1, 10, 19, and/or 21, such a failure or misoperation of the rectifier 18 would be detectable, since DC bus voltage is being monitored or sensed. Both *Janonis* and *Tassitino* fail to recognize this unexpected benefit.

MPEP section 2144.03 indicates that “an obviousness rejection may be based upon common knowledge in the art.” However, MPEP section 2144.03 further requires that “if the applicant traverses such an assertion the examiner should cite a reference in support of his or her position.” Since the Applicants have traversed the allegation used to reject at least independent claims 1, 10, 19, and 21 in the Office Action, and provided sound reasoning in support of the traverse, Applicants respectfully request the Examiner to provide such a citation, as required by MPEP section 2144.03. Accordingly, if any of the pending claims continue to be rejected based upon information alleged to be well-known, Applicants respectfully request that the Examiner “cite a reference in support of his or her position” or provide an affidavit specifically stating the alleged “facts within the personal knowledge of the examiner,” as the Examiner is required to do under MPEP §2144.03, in the next Office Action.

c. Claims 2-9, 11-18, 20, and 22-25

Because independent claim 1 is allowable over the cited art of record, dependent claims 2-9 (which depend from independent claim 1) are allowable as a matter of law for at least the reason that the dependent claims 2-9 contain all features/elements of independent claim 1. See, e.g., *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Similarly, because independent claims 10, 19,

and 21 are allowable over the cited art of record, dependent claims 11-18 (which depend from independent claim 10), dependent claim 20 (which depends from independent claim 19), and dependent claims 22-25 (which depend from independent claim 21) are allowable as a matter of law for at least the reason that these dependent claims contain all features/elements of their respective independent claim. Accordingly, the rejection to these claims should be withdrawn.

4. Conclusion

In light of the above amendments and remarks, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that all pending claims 1-25 are allowable. Applicants, therefore, respectfully request that the Examiner reconsider this application and timely allow all pending claims. The Examiner is encouraged to contact Mr. Armentrout by telephone to discuss the above and any other distinctions between the claims and the applied references, if desired. If the Examiner notes any informalities in the claims, he is further encouraged to contact Mr. Armentrout by telephone to expediently correct such informalities.

Respectfully submitted,  
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